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State of Washington
On-Site Wastewater Treatment System Designer
Licensing Examination Content Outline

The following information is provided to assist applicants in preparing for the Washington State On-Site Wastewater Treatment System Designer Licensing Examination. The examination is designed to measure the applicants ability to understand and apply the fundamental principles of on-site wastewater treatment systems. The following outline shows the four major subject areas covered in the examination as well as the percentage of the total examination that will deal with that subject area.

Content Area and Percentage of Questions

1. Data Gathering *30%*

A. Information from Client

1. Obtain history of past submittals or proposals for new systems
2. Obtain history of system components for existing systems (e.g., problems, inspections, type and location)
3. Obtain legal lot information (e.g., address, tax information)
4. Obtain relevant property historical data
5. Obtain a description of user's habits and characteristics
6. Obtain user's current and future plans for improvements or site development
7. Obtain information on potable water sources
8. Obtain dwelling specifics (e.g., dimensions, room types)

B. Information Gathered from Other Sources

1. Verify plats, surveys, and legal descriptions from county records
2. Identify potential problems regarding zoning, land use, or other critical areas (e.g., wetlands, flood zone, steep terrain)
3. Identify setback requirements
4. Gather soil and geohydrologic information on the subject area
5. Investigate relevant characteristics of adjacent sites
6. Determine applicable regulations
7. Verify availability of public sewers or sewage systems

C. Overall Site Evaluation

1. Identify existing structures (house and outbuildings)
2. Identify components of existing systems
3. Verify location of potable water source
4. Verify existing property dimensions, property lines, and corners
5. Assess quantity and type of vegetation on property

6. Evaluate topography of the site and adjacent properties
7. Identify surface waters, ground waters, and assess drainage (geohydrology)
8. Identify location of utilities and easements
9. Identify the most appropriate location for drainfields
10. Identify potential construction pathways

D. Evaluation of the Soil

1. Determine the location and number of test holes needed
2. Excavate test holes
3. Visually inspect the soil
4. Complete logs of soil sampling
5. Determine soil classifications and types
6. Determine depth of suitable unsaturated soil
7. Determine and locate impervious layers
8. Determine location and nature if fill material is present
9. Determine depth of seasonal water table
10. Compare soil test results to previously gathered soil and geohydrologic information

E. Documentation

1. Prepare a site sketch
2. Prepare a written report of findings

2. Design ***45%***

A. Location

1. Identify location of system components
2. Establish a benchmark
3. Establish system component elevations
4. Establish horizontal and vertical control

B. Type of System

1. Determine type of treatment and disposal system
2. Estimate daily flow requirements
3. Determine wastewater strength requirements
4. Determine disposal component configuration (e.g., drainfield, mound, etc.)
5. Determine treatment component configuration (e.g., septic tank, sand filter, ATU etc.)

C. Final Design Preparation and Application Submittal

1. Consult with property owner regarding final design components
2. Produce a detailed drawing for the site, including property lines, structures, easements, topographical features, vegetation, etc.
3. Produce detailed drawing for system components.
4. Establish site preparation requirements
5. Document decisions made regarding system location and features
6. Determine total dynamic head pressure requirements, as required
7. Determine specifications for equipment/materials based on calculations
8. Prepare and submit permit application package

3. **Construction Management** ***15%***
   - A. **Preparation**
     1. Conduct on-site pre-construction conference
     2. Assess changes in conditions (e.g., soil, topography, vegetation) that may have occurred since design work was completed
     3. Modify design components, if appropriate

   - B. **Project Execution**
     1. Verify designed treatment components and materials (e.g., tanks, ATU's, floats, filter, etc.)
     2. Verify designed disposal site preparation (e.g., location, orientation, elevations, soil,)
     3. Verify designed component construction and materials (e.g., drain rock, squirt height, etc.)
     4. Verify designed component finished conditions (e.g., cover, elevations, drainage, landscaping)

   - C. **Final Inspection**
     1. Determine consistency between design and installation
     2. Report inconsistencies

4. **Post-construction Activities** ***10%***
   - A. **Documentation**
     1. Develop a detailed as-built drawing
     2. Document all system components (e.g., equipment type and model, system settings)

   - B. **Operations and Maintenance**
     1. Prepare owners operations and maintenance manual
     2. Provide training on ongoing operations for the owner
     3. Provide contact information for follow up, if needed
     4. Perform operational assessment (e.g., troubleshooting) for an existing system
     5. Document system operating parameters
     6. Identify frequency and type of monitoring (e.g., providing checklists)

Any test questions that relate to codes or regulations are written to the state regulations governing on-site designs and not local regulations.

All applicants are advised to utilize any resource or reference materials that may provide useful information in preparation for the exam. We recommend contacting any professional industry associations and industry recognized educational providers for more information regarding reference materials, as well as for general test taking guidance.